

(19)



Europäisches Patentamt

European Patent Office

Office européen des brevets

(11) Publication number:

**0 268 237
A3**

(12)

EUROPEAN PATENT APPLICATION

(21) Application number: 87116861.3

(51) Int. Cl.⁴ **G01N 1/10 , G01N 35/00 ,
G01F 11/02**

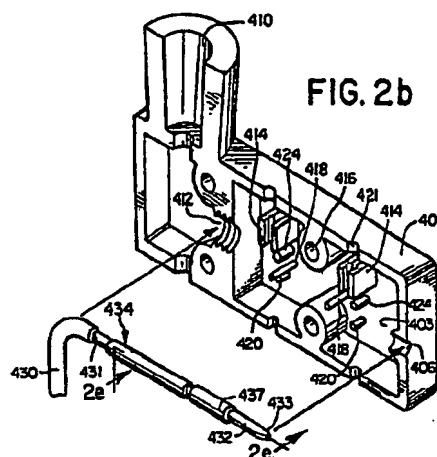
(22) Date of filing: 16.11.87

(30) Priority: 17.11.86 US 931476

(43) Date of publication of application:
25.05.88 Bulletin 88/21(84) Designated Contracting States:
AT BE CH DE ES FR GB GR IT LI LU NL SE(88) Date of deferred publication of the search report:
30.11.88 Bulletin 88/48(71) Applicant: **ABBOTT LABORATORIES****Abbott Park Illinois 60064(US)**(72) Inventor: **Hayes, Donald J.**
2012 Tampicko Drive
Plano Texas 75075(US)Inventor: **Wallace, David B.**
9929 Wood Forest
Dallas Texas 75243(US)Inventor: **Verlee, Donald J.**
563 Drake Street**Libertyville Illinois 60048(US)**Inventor: **Houseman, Kenneth R.**
1520 S. Main Street**Racine Wisconsin 53403(US)**(74) Representative: **Modiano, Guido et al**
MODIANO, JOSIF, PISANTY & STAUB
Modiano & Associati Via Meravigli, 16
I-20123 Milan(IT)(54) **Apparatus and process for reagent fluid dispensing and printing.**

(57) A system for printing and dispensing chemical reagents in precisely controlled volumes onto a medium at a precisely controlled location. A jetting tube (432), comprising an orifice (433) at one end and a fluid receiving aperture (431) at the other end, is concentrically mounted within a cylindrical piezo-electric transducer (434). The fluid receiving aperture (431) is connected to a reservoir (200) containing a selected reagent by means of a filter (300). The reservoir is pressurized by a regulated air supply. An electrical signal of short duration is applied to the transducer. The pulse causes the transducer (434) and the volume defined by the jetting tube (432) to expand, thereby drawing in a small quantity of reagent fluid. The cessation of the pulse causes the transducer (434) and the volume of the jetting tube (432) to de-expand, thereby causing at least a substantially uniformly sized droplet of reagent fluid to

be propelled through the orifice (433). The droplet may be directed to impact a printing medium or collected in a dispensing receptacle.



EP 0 268 237 A3



European Patent
Office

EUROPEAN SEARCH REPORT

Application Number

EP 87 11 6861

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl.4)
X	EP-A-0 119 573 (MILES LABORATORIES INC.) * Page 2, lines 6-11,19-26; page 4, line 30 - page 5, line 7; page 8, line 22 - page 9, line 10; page 10, lines 10-12,26; page 11, line 22; page 13, line 31 - page 14, line 10; page 17, lines 1-9,14-21; page 18, lines 10-18; figures 1-8 *	1-4,8, 10,12- 15	G 01 N 1/10 G 01 N 35/00 G 01 F 11/02
A	US-A-4 449 134 (D.P. SKINNER, Jr.) * Figure 1; column 4, lines 18-22,48-60 *	6,7,9	
A	US-A-3 857 049 (S.I. ZOLTAN) * Figures 1,1a,4; column 2, lines 12-30,56-66; column 3, lines 56-62; column 6, lines 40-44 *	5,8,11	
A	US-A-3 775 058 (B. BUSCH) * Figures 1,2; abstract; column 4, lines 43-64; column 6, lines 1-26; figure 10; column 18, line 48 - column 19, line 17; column 19, lines 39-44 *	1-5,8, 14	
			TECHNICAL FIELDS SEARCHED (Int. Cl.4)
			G 01 F G 01 N B 01 L B 41 J
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 09-09-1988	Examiner HOCQUET A. P. E.
CATEGORY OF CITED DOCUMENTS			
X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document	

EPO FORM 1503 01.82 (P0401)

CGK00000951